Universidade do Minho
Escola de Psicologia

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outubro de 2020

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Dissertação de Mestrado
Mestrado Integrado em Psicologia

Trabalho efetuado sob a orientação do
Professor Doutor Pedro Rosário

outubro de 2020

“O futuro pertence àqueles que acreditam na beleza dos seus sonhos. ”

Eleanor Roosevelt

A quem permitiu a existência do sonho, aos meus.

A quem orientou e desafiou o sonho, ao Professor.

A quem auxíliou a lavoura que o sonho acarreta, ao GUIA.

A quem partilhou das alegrias e das adversidades intrínsecas ao sonho, à Sara e à Catarina.

A quem incentivou a expansão do sonho, ao André.

A quem acompanhou o caminho que precede o sonho, à Vitoria, à Inês, à Rute, à Ana Miguel, à Rafaela, à Ana, à Manuela e à Ângela.

A quem estará sempre perto do sonho, à Ana e à Taibo.

A quem partiu depois de educar para sonhar, ao avô Joaquim.

A quem, ao longo deste percurso, acreditou na beleza do meu sonho.

O futuro pertence a todos e, por isso, obrigada.

STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho.

University of Minho, october 19, 2020

Full name: Joana Isabel Araújo Martins

Signature: Joana Isabel Araújo Martins

Inteligência cultural, ajustamento individual e envolvimento académico: Há uma ligação?

Resumo

A industrialização permite a aproximação de sociedades, promovendo trocas culturais entre indivíduos que apresentam históricos culturais diferentes. Estas trocas criam ambientes multiculturais novos, nomeadamente na área da Educação. Este fenómeno expõe os estudantes a ambientes que apelam, simultaneamente, ás suas competências culturais e educacionais. No entanto, investigação sobre a relação entre fatores culturais e educacionais ainda é escassa. O presente estudo examinou dados referentes a 509 estudantes do ensino superior de universidades portuguesas. A análise de dados reportou uma relação entre a inteligência cultural e a competência social percebida sobre o envolvimento académico, mediado pelo ajustamento ao trabalho académico. Os nossos resultados reportam uma urgente necessidade de promover fatores culturais no ensino superior a fim de melhorar consequências educacionais, nomeadamente o envolvimento académico. As implicações psicoeducacionais derivadas do estudo são discutidas.

Palavras-chave: inteligência cultural, envolvimento acadêmico, ajustamento, ensino superior

Cultural intelligence, individual adjustment and academic engagement: Is there a connection?

Abstract

Industrialization allows societies to be connected, promoting cultural exchanges between individuals from different cultural backgrounds. These exchanges create new and unprecedented multicultural environments, namely in educational settings. This exposes students' to environments that appeal to their cultural and educational abilities simultaneously. However, there is limited research examining the relationships that exist between cultural factors and educational outcomes. The current study examined data provided by 509 undergraduates from Portuguese universities. Data analysis reported a relationship between cultural intelligence and perceived social competence on academic engagement, mediated by academic work adjustment. Our findings report the urgent need to promote cultural factors in higher education settings insight of enhancing educational outcomes like academic engagement. Psychoeducational implications derived from the present study are discussed.

Keywords: cultural intelligence, academic engagement, adjustment, higher education

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Cultural intelligence, individual adjustment, and school engagement: Is there a connection?

There has been, for the last decade, a sense of urgency around industrialization and development (Oqubay & Lin, 2020). This constant progress, jointly with the human demand to engage in networking and interact with others, provides the foundation for cultural exchanges to occur (Gomes & Oliveira, 2019). These cultural transactions make societies more connected than ever (Morrice, 2019), and simultaneously alter the net of interpersonal relationships to a broader and more culturally diverse stand. Cultural exchanges are becoming more frequent, connecting different cultures and mind-sets, and making intercultural experiences a culture of its own (Brady & Stevens, 2019; McLaren & Peterson, 2019). This phenomenon endorses the possibility of building a world with less cultural and racial conflict (Cheon, 2019). What is more, these exchanges between culturally diverse populations can have both severe consequences (i.e., damaged educational trajectory, poor health choices, and less political involvement (Jamal et al., 2019; Passiatore et al., 2019; Schwarzenthal et al., 2020), and very positive influences (i.e., more cultural awareness, better career/employment perspectives, and improved language skills (Roy et al., 2018) on the individual trajectories.

These experiences of intercultural change expose individuals to settings characterized by diversity, where multicultural experiences rule the majority of interactions that individuals encounter (Cardwell, 2019). Furthermore, the educational field has also noted this, since Europe reported an increase in student's mobility programs, stating an increase of three million in exchange students (Ladum & Burkholder, 2019). These reports display how strongly students search for opportunities outside the place they call home, exposing themselves to contemporary and unfamiliar situations, while simultaneously participating and creating new environments characterized by a mixture of people with distinct backgrounds, forming multicultural settings (De Wit, 2020). Students search for international opportunities (i.e., programs abroad and scholars) as a way of promoting reputation and branding for themselves, pushing for a distinction in the curriculum, and increasing their value as academics. Traditionally, these educational experiences are viewed as overwhelming and demanding due to the intrinsic efforts they entail, frequently leading to severe consequences, either socially, psychologically, or physically (Brady & Stevens, 2019; Passiatore et al., 2019). However, some newer perspectives have been emerging, where authors view these intercultural experiences as more than a challenge, looking at it as a chance to develop skills beyond formal education (Roy et al., 2019). They view it as a unique way of learning, characterized by the development of a useful set of interpersonal and emotional skills (Zembylas, 2012).

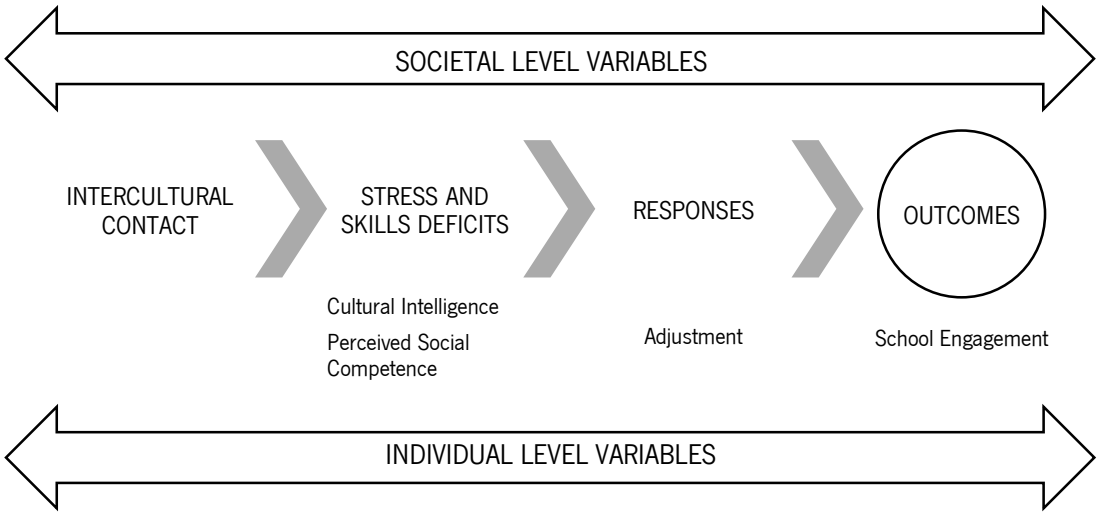
In short, intercultural interactions are frequent in today's society, being particularly important to promote individuals' ability to participate successfully in them. As a result, we believe that it is important to analyze the role of certain skills relevant in the area, like cultural intelligence (CQ), as a facilitator of students' adjustment and consequently enhancing academic performance. For the purpose of this study, we understand CQ as the ability to function adequately in settings characterized as culturally diverse (Earley & Ang, 2003). Two conceptual frameworks that bear direct relevance to this investigation are the intercultural model, proposed by Ward and Geeraert (2016), and the academic engagement framework, proposed by Fredericks et al. (2004) which we will address later.

Acculturation Model for Intercultural Contact Experiences

The conceptual framework by Ward and Geeraert (2016) is an explanatory model for experiences of intercultural contact. The model accounts for the following influences: societal level variables (i.e., social, political, economic, and cultural factors), individual-level variables (i.e., characteristics of the person and the situation), stress and skills deficits, individual responses to the experience (i.e., affective, behavioral and cognitive) and outcomes generated from the situation (i.e., psychological, sociocultural), fitting perfectly as a framework for the present investigation (see Figure 1).

Figure 1

Acculturation Model Adaptation from Ward and Geeraert (2016)



From a young age, individuals learn and operate in societies according to patterns provided by their cultural background. Due to the enhancement in communication accessibility, intercultural encounters have increased their frequency, which places individuals in contact with cultural patterns different from their own. According to Ward and Geeraert (2016), intercultural contact can be considered the phenomenon that starts the acculturation process, because the inability to adjust and adapt to cultural differences creates intercultural shock, which is followed by acculturation (Wang & Bai, 2020). This means

that the problematic side of these cultural experiences emerges from the inability to deal with the cultural differences found in multicultural environments (McLaren & Peterson, 2019). According to Pacheco (2020), the perceived difficulties when adjusting and dealing with new cultural environments regards cultural shock, this phenomenon beginning the first stage of acculturation. Acculturation is still recurrent in today's societies and continuously results in the alienation of people who arrive at new and culturally different places (Thomas, 2020). In short, the model shows how intercultural contact is intrinsically connected to the individual adjustment accomplished and, consequently, to the outcomes achieved from the process. This framework allows us to comprehend how adjustment and engagement may be related. When applying this to multicultural experiences, it nominates adjustment as a mediator of the whole process.

According to Alipio (2020), in higher education settings, the adjustment accomplished by students is strongly related to academic performance, therefore, it becomes extremely important to practice and develop useful skills to assist in the adaptation and adjustment to cross-cultural situations. It is necessary to enhance the adjustment of students to the college environment (AWA), through a multicultural curriculum and strategies that appeal to the development of the feeling of belonging, to encourage students to engage more in university activities (Kim et al., 2020). Further, Aghajafari et al. (2020), reported the importance of an integrated and culturally homogenous learning environment for positive educational outcomes.

In other words, individuals need to acquire skills (i.e., cultural intelligence) that allow them to adapt and integrate intercultural experiences simultaneously protecting their adjustment. Furthermore, according to the previously presented model, skills deficits impair the responses (i.e., individual adjustment) that the individual generates during the process, which will determine the outcomes (i.e., academic performance).

According to Sousa (2019), culturally diverse environments support the development of skills that are essential to promote interpersonal relationships, since individuals can experiment with intercultural contact and develop CQ. Also, Earley and Ang (2003) conceptualized CQ as individuals' capability to effectively function in settings defined as culturally diverse. CQ is a multidimensional construct, comprised of four dimensions: metacognitive, cognitive, motivational, and behavioral (Schwarzenthal et al., 2020). The first dimension, the metacognitive CQ, may be defined as people understanding of the influences of culture on each individual. Cognitive CQ refers to the individuals' knowledge of norms, values, and cultural mores of other cultures. The third dimension, motivational CQ, describes the feelings of enjoyment

displayed when interacting in and with culturally diverse settings. Lastly, behavioral CQ relates to the adoption of culturally appropriate behaviors in intercultural experiences.

Individuals' cultural intelligence draws upon previous multicultural experiences. According to Earley and Ang (2003), multicultural environments are responsible for the development of cultural intelligence, because they allow an effective practice of the ability to adapt to distinct contexts and distinct people. According to Azevedo and Shane (2019) CQ is an individual skill that can be developed through training and experience, in some specific suitable settings, like multicultural universities (Pacheco, 2020), where students find the opportunity to contact with others who carry a unique cultural background, allowing the development of CQ through these acquaintances (Zografova, 2019)

The outcomes related to the lack of CQ have been well documented in the literature, presenting socially relevant consequences like conflicts and wars (i.e., Black Lives Matter Movement). On an individual level, the outcomes include several developmental areas, like biological (i.e., nutritional status variations), cultural (i.e., new religious systems), social (i.e., in-group/out-group relations), and psychological (i.e., changes in mental processes; higher risks of distress; Hjellset & Ihlebaek, 2019; Ward et al., 2010).

In the educational field, problems regarding this theme have started to intensify (i.e., *Federal Government of USA* vs *Harvard & MIT*). Mostly in higher education settings, students come in contact with culturally rich environments, exposing them first-hand to the influence that intercultural contact can have on their adjustment (Cherng et al., 2019). According to Gareis et al. (2019), students face difficulties in adapting their behaviors (verbal and nonverbal) to what is socially acceptable in the place they just arrived at, which impairs their adaptation to the new setting school success. For example, cultural minorities inserted in mainstream societies often encounter maladaptive outcomes that can lead to educational compromises (Ladum & Burkholder, 2019; Passiatore et al., 2019) like high rates of drop out (Makarova & Birman, 2015). This nominates college students as the perfect sample to study cultural intelligence (Chen & Lin, 2019). In sum, this means that individual adjustment is directly related to the education outcomes accomplished in multicultural settings or by culturally different people.

Moreover, Rumberger and Palardy (2005), found disengagement as a powerful predictor of drop out in ethnic/cultural minorities, nominating it as a great vehicle to promote and improve positive changes in the academic path of people experiencing multicultural settings (Vietze et al., 2019). Furthermore, these difficulties in adaptation and adjustment to multicultural settings make it impossible for students to succeed in academic contexts, presenting a tendency to have problems in the long term (i.e., internalization/externalization and drug abuse; Bond et al., 2007; Marcelo & Yates, 2019).

Engagement Framework

School engagement is a multidimensional construct, that can be defined as students' involvement in school-related aspects (Fredericks et al., 2004), it expresses itself in three different ways: behavioral, emotional, and cognitive. Behavior engagement addresses individuals' participation and involvement in academic and extracurricular activities (Fredricks et al., 2004). Emotional engagement characterizes students' affective reactions in the school context (i.e., anxiety, interest, and boredom) and their sense of belonging. The third dimension is cognitive engagement, which is defined as the investment in the learning process and is closely related to students' use of self-regulated learning strategies (Fredricks et al., 2004). The impact of school engagement on academic achievement is well documented in the literature. Extend findings show close relationships between risks of dropping out, students alienation, and academic achievement outcomes (Fredericks et al., 2004; Gutiérrez, 2019). These problems are amplified in groups culturally distant from the majorities, due to their difficulties of adjustment (Makarova & Birman, 2015).

Further, there is one more important aspect of human interaction in intercultural contexts that widely shapes the academic adjustment every university student has, perceived social competence (PSC). According to Tabassum et al. (2020), it is a crucial competence to develop as an undergraduate, because it allows a better adjustment to university and consequently enhances the performance. Whenever students have a well-developed perceived social competence, thought experience, it subsequently influences popularity with fellow peers and allows a positive adaptation to newness (Nagai et al, 2018), which will enable better academic performance. According to Perez & Shim (2020), there is a growing need to expand the knowledge on the impact that intercultural experiences can present for human development, ultimately bringing to light the need to work on cultural intelligence and intercultural communication.

Study's Purpose

The main purpose of the present investigation is to understand the relationships between cultural intelligence and perceived social competence and students' academic engagement mediated by their academic adjustment. Given the substantial connection that individual adjustment, academic engagement, educational consequences, it becomes extremely important to determine the role played by cultural intelligence in this process (Perez & Chim, 2020).

This investigation focuses on examining the role of cultural intelligence and perceived social competence in academic engagement mediated by academic adjustment. To the extent of our knowledge, the relationships between these variables have not been receiving the researchers' attention. Findings

are expected to help further understand the role played by cultural intelligence on students' engagement and set campus-based strategies to foster the latter and promote students' academic success.

Methodology

Study aims and hypothesis

The goal of this study is to analyze the mediator role of AWA on the effect of perceived social competence and cultural intelligence on student academic engagement. To attain this purpose, three models were tested: (i) model of total mediation, (ii) model of partial mediation, (iii) model of no mediation

Model of total mediation

We hypothesized that the predictive variables (i.e., perceived social competence and cultural intelligence) explain indirectly student academic engagement (cognitive, behavioral, and emotional) through academic work adjustment (see Figure 2, Model 1).

It is expected that the higher the perceived social competence and cultural intelligence, the better the academic work adjustment and the higher the students' academic engagement. On the contrary, students with low perceived competency and cultural intelligence are expected to show low AWA and academic engagement.

Model of partial mediation

We hypothesized a model with direct plus indirect effects (see Figure 3, Model 2). It is expected that the predictor variables (i.e., perceived social competence and cultural intelligence) explain the criterion variable (students' academic engagement) direct and indirectly (through AWA). Both effects (direct and indirect) are expected to be positive.

Model of no mediation

We hypothesized a model with direct effects (see, Figure 4, Model 3). our general hypothesis is that academic work adjustment is not mediating the effect of perceived social competence and cultural intelligence on student academic engagement. We hypothesized that there is no statistically significant relationship between perceived social competence and cultural intelligence, and academic work adjustment. Differences in perceived social competence, or cultural intelligence, are not systematically associated with data on academic work adjustment.

Figure 2

Total Mediation Model of Student Academic Engagement

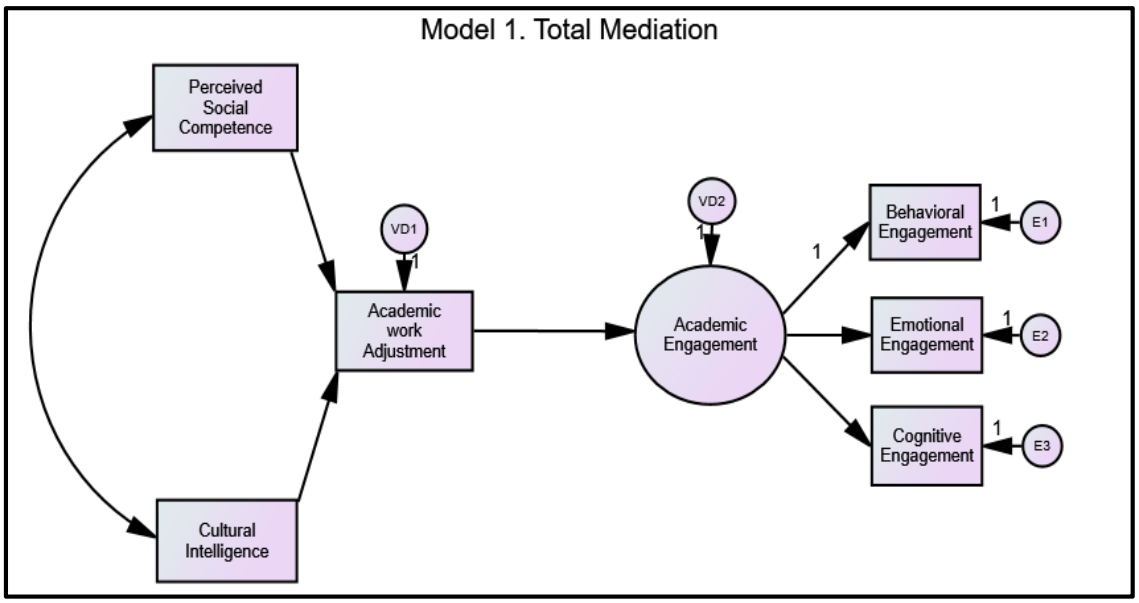


Figure 3

Partial Mediation Model of Student Academic Engagement

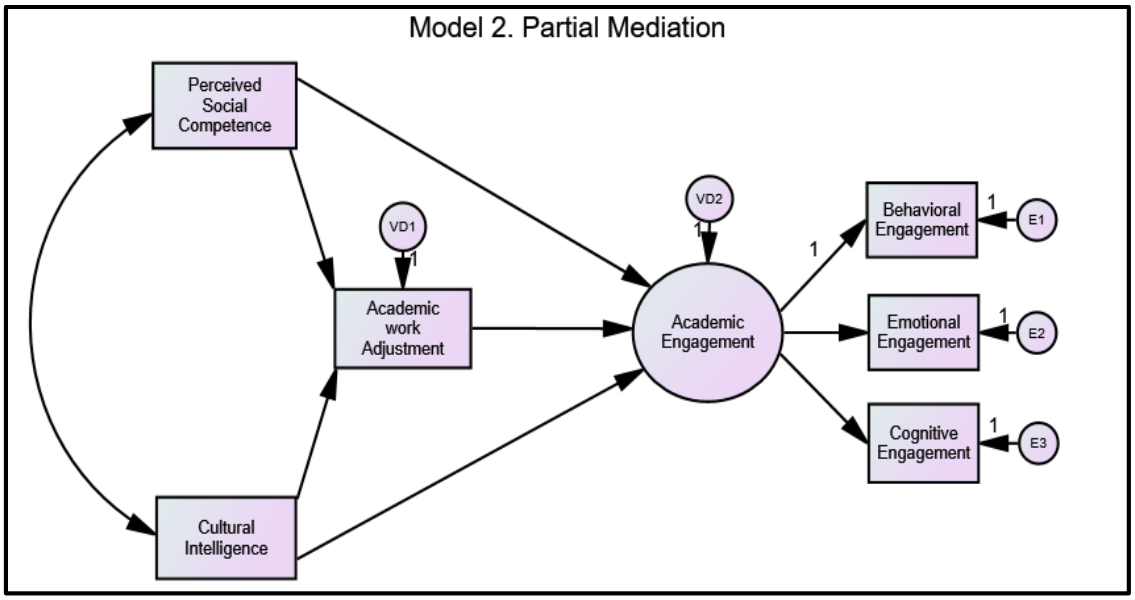
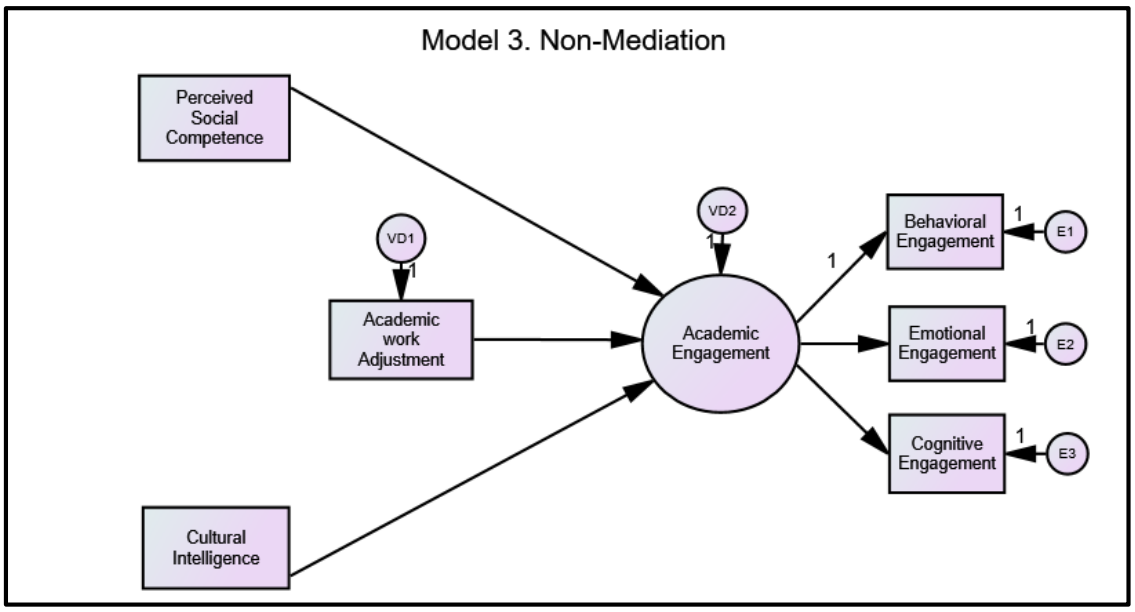


Figure 4

Non-Mediation Model of Student Academic Engagement



Sample

The present investigation collected a sample of 509 college students, with ages 18 to 60 (*M = 22.23, SD = 6.140, Mdn = 20.00*), from which 67.2% were women and 32.8% were man. To collect information on the socioeconomic status, participants indicated if they were recipients of national public scholarships, to which 63.7% said "yes" and 36.3% said "no". From the total sample, 84.5% were Portuguese and the remaining 15.5% were from one of the following: Andorra, Angola, Brazil, China, Spain, France, the Republic of Guinee Bissau, Italy, Lithuania, Luxemburg, São Tomé, and Principe, Switzerland, East Timor, Ukraine, and Venezuela. All participants were undergraduates from either Bachelor´s or Master´s degrees from the following fields: Exact Sciences, Humanities, Natural Sciences, Social Sciences, and Engineering

To properly characterize the sample, one other control variable was collected: participants´ experiences abroad. According to the data, 24.6% of the participants had previously experienced living abroad (2.8% for less than a month; 4.5% from one month to six months; 2.2% from 6 months to a year; 2.4% from one year to three years and 12.8% for more than three years). The host countries reported for these experiences overseas were spread around the world, so for an easier understanding, the countries were clustered into groups, using the United Nations geographical sub-regions scheme: Western, Southern and Eastern Europe; South and Northern America; Southern, Western, Middle and Northern Africa; South-eastern and Eastern Asia and Australia.

Measures

The questionnaire used in the present study was composed of a statement consent, 10 sociodemographic questions, and five measures that were used in the assessment of their respective constructs (perceived social competence, cultural intelligence, adjustment, and school engagement). Every question/item was back-to-back translated to Portuguese by three investigators. It is of importance to note that every participant had a personalized individual code that made it impossible to identify the individual. Each participant had an individual and unique code for their questionnaire (first name letter, last name letter, and day of birth).

Firstly, the sociodemographic questionnaire was designed by the team to collect the appropriate information, and it was composed of the following questions: age, sex, degree, grant recipient, place of birth, if they had previous experience living abroad (where and how long). Secondly, we used the Children's Perceived Competence Scale (Nagai et al, 2018), a scale designed to evaluate psychometric properties regarding self-perceived competence (cognitive, social, and physical) and self-esteem. Items for the social domain only were selected and adapted (n = 5) for the present investigation (i.e., I have many friends), to which the participants answered using a 4-point Likert scale (1 = *False*, 2 = *Relatively false*, 3 = *Relatively true*, 4 = *True*) (alpha of .73 for the present study).

Thirdly, we used the validated Portuguese version of the Cultural Intelligence Scale (Sousa et al., 2015), that evaluated individual competence to operate in unfamiliar multicultural environments. The scale evaluated this multidimensional construct using four different dimensions (metacognitive, cognitive, motivational. and behavioral), for the present study only the items regarding the cognitive (i.e., I know the arts and crafts of other cultures.) and motivational (i.e., I enjoy interacting with people from different cultures.) dimensions were used (alpha of .85 and .84 respectively. These data are of the current study). Participants answered 11 items, using a 7-point Likert-scale (1 = *Totally disagree*, 7 = *Totally agree*), where six items belonged to cognitive CQ and five regarded the motivational CQ.

Further, participants' adjustment to the multicultural environment (university setting) was also assessed using an adaptation of the multidimensional scale designed by Black (1990) for Japanese students. The original scale comprehends three different domains of adjustment: general adjustment, work adjustment, and interaction adjustment. For the present investigation, only the work domain (three items) was used (alpha of .86 for the present study), reflecting the interest in how students adjust to their academic work. Participants answered using a 7-point Likert scale (1 = *Not adjusted at all*; 7= T*otally adjusted*).

Additionally, we evaluated students' school engagement using a scale developed by Jang et al. (2016), where only the items regarding school engagement were used. Participants 'answered 14 items regarding this construct, from which four were designed for cognitive engagement (i.e., When reading for this class, I try to explain the key concepts in my own words.) (alpha of Cronbach of .83 for the present study), five for emotional engagement (i.e., This class is fun.) (alpha of Cronbach of .82 for the present study), and five for behavioral engagement (i.e., I pay attention in this class.) (alpha of Cronbach of .78 for the present study).

Procedure

This is a transversal non-experimental study, with a quantitative methodology, that employed two different approaches for the data collection: online and face-to-face. The majority of the gathered data was collected in a face-to-face setting on both campuses of the University of Minho. The team reached out to professors from the previously mentioned institution and inquired on the possibility to conduct the questionnaire administration during lectures of their respective classes, taking up to a maximum of 15 minutes to do so. Every collection moment started with a brief explanation about the present study, the team responsible for it, and a small description of the questionnaire. The students who were willing to participate received the statement consent along with the questionnaire. On all collection moments, the investigation team offered the opportunity to ask and clarify any questions related to the survey. The online approach consisted of sharing and spreading the questionnaire, using virtual platforms (Google Forms), to the academic communities of interest (i.e., higher education students from other universities).

Data analysis

The data were analyzed in three steps. First, the statistical properties of the variables included in the study (means, standard deviations, asymmetry, kurtosis), as well as the correlation matrix and the missing values were analyzed. The missing values were treated through the multiple imputation procedure. Secondly, the SEM models (no mediation, mediation total, and mediation partial) were fit with the AMOS 22 program in SPSS (Arbuckle, 2013) using robust maximum likelihood (RML). The strategy followed for the adjustment of the three models has been the following: (1) calculate the adjustment of the three basic models (no mediation, total mediation, and partial mediation); (2) select the best model of the three and adjust it again including the two covariates (gender and failed courses); (3) re-specify the model eliminating statistically non-significant coefficients. The models were adjusted and their results were evaluated according to the typically used criteria: the Chi-square, Root Mean Square Residual (RMR), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Tucker-Lewis Coefficient (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA),

Akaike Information Criterion (AIC) and Bayes Information Criterion (BIC). While the first seven give us information on the degree of fit of the theoretical model to the collected data, AIC and BIC are used to decide which competing for model best fits. There is evidence of a good fit when χ^2 has a $p > .05$, RMR < .05, GFI, AGFI and TLI ≥ .90, CFI ≥ .95, and RMSEA ≤ .06. The best model is the one that gets the smallest AIC and/or BIC. The effect size of the regression coefficients was evaluated using Cohen's (1988) *d* statistic.

Results

Descriptive Analysis

Table 1 presents descriptive statistics and the correlation matrix for the variables in the model. Following Gravetter and Walnau (2014), data for skewness and kurtosis indicate univariate normal distribution. However, taken together, Mardia's coefficient ($M = 3.955$; $t = 4.553$; $p > .05$) indicates a slight treat to the multivariate normality. The correlation matrix indicates that all the included variables are positively and significantly related. Students reporting high cultural intelligence and perceived social competence, also show and high AWA to university and high academic engagement. The contrary also holds true.

Table 1

Descriptive statistics and Pearson correlations (N = 509)

	BE	EE	CE	AWA	PSC	CQ
BE	1.000					
EE	.683**	1.000				
CE	.294**	.349**	1.000			
AWA	.255**	.351**	.246**	1.000		
PSC	.152**	.188**	.130**	.213**	1.000	
CQ	.144**	.178**	.229**	.323**	.375**	1.000
M	3.509	3.494	3.919	4.708	2.564	4.623
SD	0.611	0.625	0.746	0.935	0.618	0.858
Skewness	-0.068	-0.342	-0.446	0.044	-0.043	-0.149
Kurtosis	0.137	0.402	-0.317	0.141	-0.212	-0.198

Note. Behavioral engagement (BE); Emotional engagement (EE); Cognitive engagement (CE); Academic work adjustment (AWA); Perceived social competence (PSC); Cultural intelligence (CQ); Mean (M); Standard deviation (SD). *$p < .05$; **$p < .01$.

Selection of the best model

Three models examining students' academic engagement were adjusted for this investigation: a model of total mediation of AWA (Model 1 in Table 2); model of partial mediation of AWA (Model 2 in Table 2); and a model of no mediation of AWA (Model 3 in Table 2). The three models were fit and Model 2 presented the best goodness of fit indexes and was chosen as the best fit model. This conclusion was corroborated by AIC and BIC data. Data on these statistics for model 2 were the lowest when compared to the three models. In sum, all considered the model of direct plus indirect effects was selected as the best fit model. The latter was then re-specified (Model 2R) using the goodness of fit indexes already mentioned (i.e., Chi-square, RMR, GFI, AGFI, TLI, CFI y RMSEA).

The fit data for this model (Model 2 of partial mediation) have shown that one of the direct effects hypothesized as statistically significant (culture intelligence on academic achievement) was not confirmed, thus this effect was eliminated and the model became more parsimonious (Model 2R in Table 2). This respecified model (Model 2R) presented a better fit than the previous Model 2.

Table 2

Selecting the best of competing models

	Model of indirect effects (Total Mediation) Modelo 1	Model of direct and indirect effects (Partial Mediation) Modelo 2	Model of direct effects (No Mediation) Modelo 3	Model of partial mediation re-specified Modelo 2R
χ^2	28.285	18.571	79.922	19.647
df	8	6	8	7
p	<.001	.005	<.001	.006
RMR	.035	.026	.072	.028
GFI	.982	.988	.950	.988
AGFI	.954	.958	.869	.963
TLI	.938	.948	.779	.956
CFI	.967	.979	.882	.979
RMSEA	.071	.064	.133	.060
(LO90-HI90)	(.048-1.000)	(.032-.098)	(.107-.160)	(.029-.092)
AIC	54.285	48.571	105.922	47.647
BIC	109.307	112.057	160.944	106.902

Note. Root Mean Square Residual (RMR), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Tucker-Lewis Coefficient (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Akaike Information Criterion (AIC); Bayes Information Criterion (BIC).

Assessment of the Model 2R

Table 3 presents standardized regression coefficients for the direct and indirect effects, the relationships between the independent variables as well as the factorial weights for the latent variable (academic engagement), the estimation errors, and the statistical significance of the estimated regression coefficients for Model 2R. Figure 5 presents the direct effects statistically significant.

Table 3

Results of the fit of the Model 2R (model of partial mediation)

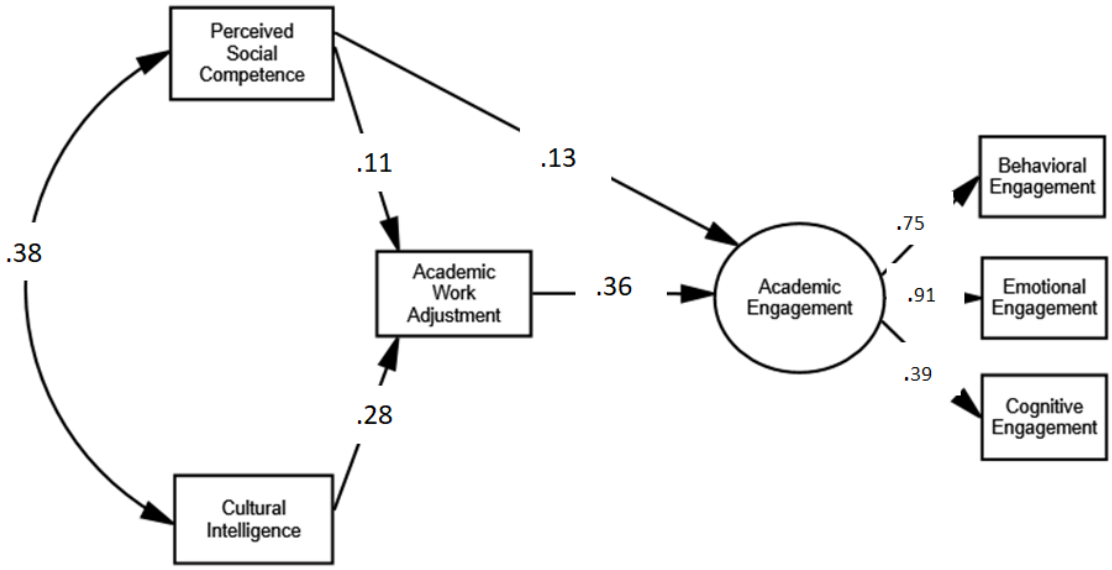
	Estimate[1]	SE	*t*	*p*
Structural Weights (direct effects)				
Perceived Social Competence ⟶ Academic Work Adjustment	.107	.068	2.364	.018
Cultural Intelligence ⟶ Academic Work Adjustment	.283	.049	6.269	<.001
Academic Work Adjustment ⟶ Academic Engagement	.355	.025	6.977	<.001
Perceived Social Competence ⟶ Academic Engagement	.134	.034	2.899	.004
Perceived Social Competence ↔ Cultural Intelligence	.375	.025	7.921	<.001
Structural Weights (indirect effects)				
Perceived Social Competence ⟶ Academic Engagement	.066	.031	2.100	.036
Cultural Intelligence ⟶ Academic Engagement	.126	.026	4.846	<.001
Factorial Weights				
Academic Engagement ⟶ Behavioral Engagement	.747	-	-	-
Academic Engagement ⟶ Emotional Engagement	.912	.104	11.963	<.001
Academic Engagement ⟶ Cognitive Engagement	.393	.078	8.274	<.001

Note. (standardized regression weights).

Data show that perceived social competence is related directly and indirectly (through academic work adjustment) to academic engagement. Effect sizes are low, both direct and indirect (d = 0.259 and d = 0.190, respectively). Moreover, cultural intelligence is indirectly related to academic engagement through academic work adjustment, with a medium effect size (d = 0.440), while the direct relationship between academic work adjustment and academic engagement as well as the direct relationship between cultural intelligence an academic work show medium effect sizes (d = 0.650 and d = 0.578, respectively). Also, the effect size between perceived social competence and cultural intelligence is fairly high (d = 0.750). Finally, data show that the academic work adjustment as well as the academic engagement explained variance was low (R^2 = .114 and R^2 = .164, respectively).

Figure 5

Direct effects of the Academic Engagement Model



Discussion

The present investigation explored the relationships between cultural intelligence and perceived social competence in students´ academic work adjustment and consequent academic engagement. According to Gutiérrez and Tomás (2019), the rates for dropout in higher education relate heavily to the students' lack of engagement. According to Basharpoor et al. (2020) school adjustment as a crucial influence on engagement, bringing into light the need to work on improving the academic adjustment of students. Therefore, to add literature, we hypothesized that cultural intelligence and perceived social competence have a positive influence on academic work adjustment and consequently enhance the academic engagement of college students. Cultural intelligence, according to Zhang and Zhou (2019), is a necessary asset in multicultural environments (like universities), helping individuals to act and behave accordingly in intercultural exchanges. Although this construct has proven its efficiency in several areas, it has yet to be in educational environments, such as college.

Firstly, results showed that the model with the best fit is the partial mediation model that includes direct and indirect effects, comprising a considerable set of relationships between the variables studied. We found several significant regression coefficients, the strongest one regarding the relationship between academic work adjustment and academic engagement ($r = 0.355$), this result shows the relevance of a strong academic work adjustment to university in students' academic engagement. This positive relationship alerts Departments and faculty for the need to promote intentionally students' academic work adjustment at the university; for example, has rooms available for students to work during the day and at night or setting courses on self-regulated learning strategies to help them improve their study skills. These

positive efforts are likely to promote students' academic engagement (Basharpoor et al., 2020), prevent long term consequences like early dropouts (Gutiérrez & Tomás, 2019), and improve their academic achievement (Van Rooiji et al., 2017). Moreover, perceived social competence and cultural intelligence showed significant positive relationships with academic work adjustment (r = 0.107, and r = 0.283, respectively). These data are consistent with findings from Larose et al. (2019) stressing personal characteristics (i.e., individual social skills) as important influences on the college adjustment process, surpassing the influence of contextual variables. For example, cultural intelligence is a valuable tool in understanding and enhancing individual adjustment to culturally abundant settings. This latter finding is consistent with the work by Presbitero (2016) indicating cultural intelligence as an important variable in moderating individuals' psychological adaptation to new environments, while also lessening the negative impact those cross-cultural transactions can create in mobility programs. Besides, recent data by Raza et al. (2020) found that individual psychological resources impacted positively on the adjustment to new environments. Altogether, these findings suggest that every individual adjusts according to a repertoire of psychological resources appropriate to the contexts where they are inserted (Liran & Millen, 2019). Moreover, cultural intelligence and perceived social competence are positively related (r = 0.375), which is consistent with data by Koç and Turan (2018) who found a cyclical and mutual influence between the two variables. This seems to be a logical relationship due to the intrinsic connection that both constructs convey for the field of interpersonal relationships. In sum, faculty and College administrators may consider using these two variables as tools to promote students' academic work adjustment in higher education. Also, current data showed that perceived social competence and cultural intelligence are related indirectly with academic engagement (r = 0.066, and r = 0.126 respectively) which is consistent with Wentzel (2017) conclusions stating that students' social skills are good predictors of school engagement due to their role in forming and maintaining relationships with peers.

Secondly, it is necessary to address the effect sizes found. The smallest effects regard the relationship between perceived social competence with academic engagement (directly (d = *0.259*) and indirectly (d = 0.190)). This shows how little perceived social competence explains academic engagement, in the present investigation. This is an interesting result due to the emphasis that the latest studies have placed on the need to promote this competence as a way of protecting college students (Moeller & Seehus, 2019). This is an imperative skill to navigate social contexts and environments, such as universities. Recent literature has pointed out certain social skills, like perceived social competence, as an influence on academic competence, which in turn, has proven to influence social skills (Aliponga, 2017). This supports our premise of using it as a positive influence for improving

academic engagement, through academic work adjustment, which consequently improves academic performance.

The biggest effect size reported is between cultural intelligence and perceived social competence which doesn't have, to the extent of our knowledge, previous literature examining this particular relationship. It is a logical connection, due to the applicability that both share in common for interpersonal relationships. Also, Hanifi et al. (2020) found that cultural intelligence is related to communication skills development through a positive correlation, which supports the idea that cultural intelligence is somehow related to social skills.

Three medium-sized effects were also reported, namely: academic work adjustment and academic engagement (d = 0.65), cultural intelligence with academic work adjustment (d = 0.58), and cultural intelligence with academic engagement mediated by academic work adjustment (d = 0.440). Concerning the effect that academic work adjustment has on academic engagement, the latest studies found the same significant effect, Rodríguez et al. (2017) found direct effects between academic work adjustment and academic achievement in Spanish students, reflecting our findings perfectly and underlining the importance that the adaptation process presents. Other authors like Lakhani et al. (2017), support these beliefs, suggesting that adjustment is a dynamic process that is constantly changing, which makes it sensible to improvement and enhancement.

Additionally, the results on cultural intelligence were fairly interesting too. Although no significant direct relations were found, cultural intelligence has shown a small relevance in explaining the academic engagement of our sample. According to Gabel-Shemueli et al. (2019), cultural intelligence has shown, in multicultural organizations, to influence workers' engagement. Although there are few resemblances between that setting and the educational context, the same principle seems to apply, where cultural intelligence can help eliminate cultural barriers (Tu et al., 2020) and promote enhancement of both academic work adjustment and academic engagement. The same authors pointed cultural intelligence as a powerful tool across multiple disciplines to enhance adjustment. This agrees with the prior idea presented by Ott and Michailova (2016), that cultural factors should be more prominently promoted to better understand the processes involving the construct and the possible outcomes that it can provide.

Furthermore, the results show a small explained variance, which means that academic engagement is little explained by cultural intelligence and perceived social competence. In other words, the academic engagement of higher education students doesn't seem to depend largely on cultural questions, which reflects little use of cultural intelligence for academic purposes.

According to Moreira and Antão (2019), the internationalization of Portuguese higher education institutions is one of the main objectives of the government, as well as the creation of environments that potentiate intercultural competencies and increase students' cultural access. Increasing these intercultural encounters is likely to promote personal and professional growth, showing the growing relevance that multiculturalism is taking in education. Still, when confronting these ideas and prospects with results found, the latter fall short. Students don't seem to resort to cultural intelligence as commonly as it is expected for the present multicultural settings in higher education, which may reflect a lack of demand from universities. Ultimately, if cultural intelligence develops through experience of intercultural experiences, the setting should appeal to its growth in sight of exploring a possible enhancement of the academic engagement. This idea is supported by the proposals found on the UNESCO world report (Kutukdjian et al., 2009) that states the need to work on fomenting cultural enrichment for higher education students.

According to Costa (2019), one possible explanation for the small explained variance is that students coexist with cultural diversity in universities never really getting familiar with it. The assumption that cultural assimilation happens just because cultural diversity is within reach may not reflect the reality of the phenomenon.

Further, one other possible reason is the number of other variables that explain academic engagement of university students, a meta-analysis found that it can be explained by internal factors like academic self-efficacy, academic satisfaction, academic performance, motivation and by external factors like ender, lecturers' teaching styles and grade (Myint & Khaing, 2020).

Limitations

The present study provides some interesting results for literature on academic engagement, but some limitations should be considered. Although results are promising and have added new information to the subject, a few limitations were found: (1) there is a lack of literature regarding the influence of cultural factors on educational issues (Hong et al., 2019); (2) the model would increase the explained variance if other variables were added (i.e., academic self-efficacy) (Vural & Peker, 2019); (3) instruments used to assess constructs were self-report measures, which may be reflected on the small quantity of variance explained encountered (Rosário, 2013).

Implications for practice

Our results have some psychoeducational implications for higher education institutions, students, professors, and politics. In light of Costas' (2019) affirmation of using cultural diversity and intercultural encounters to strengthen classroom environments and students' overall education, we

propose the employment of cultural intelligence and perceived social competence as a protective factor of students' adjustment and engagement. This could also help to enhance professors' abilities (in cultural questions) and promote higher education institutions as culturally conscious and appealing for future students, which should be perceived as an advantage for universities.

According to Schachner et al. (2016), there is a need to better prepare academic environments for the emerging cultural diversity, which could be accomplished by implementing programs that reflect the cultural heterogeneity that globalization is producing and that could improve and facilitate students' adjustment. This is a need that is yet to be explored, for either formal (i.e., interactions due to academic subjects) or informal (i.e., interactions with peers during sports) settings (Lin & Shen, 2020).

Suggestions for future research

Future studies should consider analyzing how much our model may fit other populations (i.e., how they perceive higher education environments and how they are affected by them). Researchers could also explore other cultural factors that could be added to these to explain academic engagement in multicultural settings. For example, future studies could evaluate all four components of cultural intelligence and other types of adjustment (i.e., socio-cultural adjustment) (Rhein & Jones, 2020). Lastly, we suggest the study of the presented model for younger students as a possible preventive measure for inconveniences in higher education.

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Appendix

Universidade do Minho

Conselho de Ética

Comissão de Ética para a Investigação em Ciências Sociais e Humanas

Identificação do documento: CEICSH 087/2020

Relatores: Emanuel Pedro Viana Barbas Albuquerque e Marlene Alexandra Veloso Matos

Título do projeto: *Mapeamento de variáveis motivacionais em tempo de pandemia COVID-19*

Equipa de Investigação: Pedro José Sales Luís da Fonseca Rosário (IR), Centro de Investigação em Psicologia (CIPsi), Escola de Psicologia, Universidade do Minho; Paula Magalhães, Jennifer Cunha e Cátia Silva, Investigadoras Júnior no Centro de Investigação em Psicologia (CIPsi), Escola de Psicologia, Universidade do Minho; Armanda Pereira, investigadora Pós-doc no Centro de Investigação em Psicologia (CIPsi), Escola de Psicologia, Universidade do Minho e ainda Estudantes inscritos no MIPsi/MPA/Doutoramento em Psicologia Aplicada na Escola de Psicologia da Universidade do Minho

PARECER

A Comissão de Ética para a Investigação em Ciências Sociais e Humanas (CEICSH) analisou o processo relativo ao projeto de investigação acima identificado, intitulado *Mapeamento de variáveis motivacionais em tempo de pandemia COVID-19.*

Os documentos apresentados revelam que o projeto obedece aos requisitos exigidos para as boas práticas na investigação com humanos, em conformidade com as normas nacionais e internacionais que regulam a investigação em Ciências Sociais e Humanas.

Face ao exposto, a Comissão de Ética para a Investigação em Ciências Sociais e Humanas (CEICSH) nada tem a opor à realização do projeto, emitindo o seu parecer favorável, que foi aprovado por unanimidade pelos seus membros.

Braga, 30 de setembro de 2020.

O Presidente da CEICSH

(Acílio Estanqueiro Rocha)

Anexo: Formulário de identificação e caracterização do projeto